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REPORT OF THE FEDERAL HORTICULTURAL BOARD.

UNITED STATES DEPARTMENT OF AGRICULTURE,
FEDERAL HORTICULTURAL BOARD,
Washington, D. C., October 1, 1921.

SIR: I submit herewith an executive report covering the administration of the plant quarantine act for the fiscal year ended June 30, 1921.

Respectfully,

C. L. MARLATT,
Chairman of Board.

HON. HENRY C. WALLACE,
Secretary of Agriculture.

LINES OF WORK.

The work of the board may be classified as follows:

1. The administration and enforcement of the miscellaneous foreign and domestic quarantine and other restrictive orders listed at the end of this report.

2. The port inspection service maintained as an essential part of the enforcement of the several foreign quarantines and restrictive orders.

3. The administration of special appropriations by Congress for the control or extermination of newly established plant enemies. Of these the appropriation for the pink bollworm of cotton, the potato wart disease, and the date scale are administered directly by the Federal Horticultural Board. Other similar appropriations made to the Bureaus of Entomology and Plant Industry of the department, involving quarantine control of new pests, are enforced under the authority of the plant quarantine act by the bureaus concerned in cooperation with this board. These include appropriations for the gipsy and brown-tail moths, the Japanese beetle, the European corn borer, the Mexican bean beetle, the white-pine blister rust, and the black stem rust, and foreign quarantines supplementing domestic State quarantines with respect to citrus canker and the flag smut and take-all diseases of small grains.

These activities have been rather fully recorded in the Service and Regulatory Announcements of the board issued during the year, and these announcements, therefore, constitute an available record in detail of the work of the board. This annual report is limited to a general discussion of the more important only of these activities.

THE PINK BOLLWORM.

The pink bollworm has gained slight foothold in one new State, namely, New Mexico, and its area has been extended somewhat in Texas, but has been very much reduced in Louisiana. A brief outline of the existing status follows.

STATUS IN TEXAS.

There are five areas or districts in Texas which are either now or have been in previous years infested with the pink bollworm, namely, the Hearne, Trinity Bay, Pecos Valley, Great Bend, and El Paso districts. The Hearne and Trinity Bay districts were original centers of infestation and the others are of later origin.

The Hearne district has been maintained as a noncotton zone from the beginning (1917), and this district is now believed to be entirely free from the pest.

The Trinity Bay district has been very greatly reduced, both as to area and amount of infestation.

The El Paso infestation, determined late in October, 1920, extends along the Rio Grande Valley from somewhat north of El Paso in Dona Ana County, N. Mex., through El Paso and Hudspeth Counties, Tex. The extensive plantings of cotton in this district in 1920, followed some very limited plantings of 1919, and the infestation undoubtedly resulted from infested cotton seed brought to the Mexican border at Juarez and from the irregular movement of Mexican laborers across the border, carrying more or less cotton and cotton seed.

The Pecos Valley district was substantially freed from the pest in 1919, but a single infested plant and a single insect being found in connection with the crop of that year. Some slight reinfestation was determined late in 1920 at a number of points in this area in connection with the crop of that year, and a jump from this infestation was determined at Carlsbad, N. Mex., in the extension of the Pecos Valley into that State.

No cotton was grown in the Great Bend district in either 1919 or 1920.

Of these five areas of infestation, the Hearne area has been apparently freed from the pest. The others, with the exception of the new El Paso region, were very substantially freed from the pest during the period when partial enforcement of noncotton zones and control work were possible under State law. The reappearance in three of the older districts is a perfectly natural result of the failure to carry out the full program of extermination, including enforcement of noncotton zones for all infested areas.

STATUS IN LOUISIANA.

The prompt and efficient work of Louisiana, in cooperation with the Federal authorities, has produced a very favorable outlook for the extermination of the pest in that State. The three parishes determined as infested in 1919 were maintained as noncotton zones in 1920, with thoroughgoing cooperation on the part of the State and planters, and have been continued as such for 1921 as to all the areas actually known to have been infested in 1919. The areas about the five towns which were under suspicion because of a shipment of seed to oil mills have been under regulation. The only infestation as a result of such movement of seed was the infestation determined late in 1920, in the vicinity of Shreveport. Thoroughgoing clean-up operations were given to this district in the following winter of 1920-21 and this new invaded area was also maintained by the State as a noncotton zone for 1921.

STATUS IN NEW MEXICO.

The extension of the El Paso district north of El Paso into New Mexico and the invasion at Carlsbad in the Pecos Valley, both relate to areas of cotton grown under irrigation and are therefore possible of efficient control under adequate State authority and support.

FEDERAL ACTIVITIES.

The effort joined in by the department to get adequate legislation from the State of Texas to keep up the program of extermination failed with respect to the regular session of the legislature, which convened early in 1921. As a result of this failure and the impossibility under the then existing State law of carrying on effective control work in Texas, a pink-bollworm conference was called at Washington for May 16, 1921, for the purpose of considering how best to prevent the spread of this pest from Texas to other cotton-producing States. This conference was attended by quarantine officers, representatives of the important agricultural organizations, and many individuals from practically all of the States interested in cotton culture. In its report this conference voiced the conviction that there is still a possibility of eradicating the pink bollworm in the United States through the establishment and maintenance of noncotton zones. It further recommended that funds for compensating farmers in non-cotton zones be supplied under adequate safeguards jointly by the State and Federal Governments.

On the promise of the Texas representatives at the conference that a strong and united effort would be made to secure adequate pink-bollworm legislation for that State, including the compensation feature, at a special session of the legislature which was called for July, and following the recommendation of the conference, this department requested authority from Congress to use not to exceed \$200,000 of the existing pink-bollworm appropriation to participate with the States in compensation of farmers in noncotton zones. This recommendation was favorably acted upon by Congress in the joint resolution of August 9, 1921. This resolution provides that the Federal payments shall be limited to the actual and necessary loss incurred by the farmer, shall in no case exceed \$5 per acre, and shall not be more than one-third of the amount paid by any State, and that no reimbursement shall be made in respect of any farmer who has not in good faith complied with all State and Federal regulations.

The special session of the Texas Legislature, in July, again took up the subject of pink-bollworm legislation and passed a law in which many of the defects of previous pink-bollworm legislation are corrected. This law provides for cooperation with the United States Department of Agriculture and for compensation to planters in non-cotton zones on the basis of actual loss incurred.

The Federal quarantine action on account of the pink bollworm has been extended to cover the new infestations by this pest in western Texas, in New Mexico, and at Shreveport, La. Based on adequate State support and cooperation, it is proposed to limit the quarantine restrictions in these States to the areas actually invaded.

THE OUTLOOK.

The future menace of the pink bollworm to the cotton crop of this country had been fully indicated by the records of this pest in Egypt, Brazil, Hawaii, and Mexico. A question as to the importance of this pest to the cotton crop of Texas and the South, which naturally arose in the minds of the planters on account of lack of adequate acquaintance with it, has been largely removed as a result of the report of a commission organized by the Texas Chamber of Commerce in November, 1920, to investigate and report directly to the governor on the pink-bollworm situation in the Laguna district of Mexico. This commission, made up of representatives of a number of State-wide agricultural and cotton associations, after minute field examinations in the Laguna, submitted a report to the governor, indicating a loss of at least 50 per cent of the crop of that district due to the pink bollworm.

Up to this time the effort of this department, in connection with the States concerned, has been to eradicate the insect. Undoubtedly any attempt to control the pest in connection with the continuation of the growth of cotton in areas actually infested will be followed by the inevitable increase of the pest in such areas and its ultimate spread throughout the South. That extermination is still possible is the belief of the experts, Federal and State, who have given careful consideration to the subject. Such extermination, however, is necessarily conditioned on adequate State cooperation, both legal and financial, and the adoption and enforcement without interruption for a period of years of the policy of noncotton zones for invaded areas.

With respect to the growing crop of cotton of 1921, at the time of writing this report (Oct. 1, 1921) it is too early to determine the possible reappearance of the pest in the invaded districts. In view of the incipency of the infestation in these districts, it is not easily possible to find infestation until the late fall and winter examinations. A single infestation has, however, been recently reported from the Trinity Bay district. The scouting and field work during the next three or four months (October-January) should fully bring out the status of this pest with respect to the crop of 1921.

RESEARCH WORK IN MEXICO AND ELSEWHERE.

Early in the year 1921 the board resumed the research work on the pink bollworm in the Laguna, Mexico, which had been interrupted for a short time. A laboratory has been established on a typical plantation where the management provides every facility for the work of the three investigators stationed there. An important feature of this work is to obtain information regarding the life history and habits of the insect which will be of help in the quarantine and eradication work under way in Texas. Methods of reducing damage are being studied which may be applicable in the United States in case the effort to eradicate the pest here fails. These include experiments with poisons along lines suggested by the recent success of the Bureau of Entomology in controlling the cotton-boll weevil, and the disinfection of seed by heat. Another line of work consists of studies of the relation between earliness of maturity and damage by the insect. For the purpose of these studies a number of the principal early-maturing varieties cultivated in the United States were planted at the station.

A bulletin reporting fully on the previous research work in Mexico was published by the department during the season.

On account of reports coming to the department about the occurrence of the pink bollworm in certain of the West Indian islands, an agent is now studying the origin and extent of the infestation in these islands and obtaining such additional information as may be of use in protecting this country from new infestations from this source.

PORT AND BORDER CONTROL TO PREVENT REENTRY OF PINK BOLLWORM.

The control which is now being exercised at border ports to prevent the reentry of the pink bollworm involves not only the Mexican-border control, which covers practically all freight and traffic entering the United States directly from Mexico, but also the northern ports of entry for foreign cottons. With respect to such northern ports, there are now in operation seven vacuum fumigation plants privately owned for the disinfection of imported cotton, viz, Boston 2, New York 2, Seattle 2, and Oakland 1. An additional plant at New York is now in course of construction and will shortly be put into operation. From March 10, 1916, to June 30, 1920, 1,503,622 bales of imported cotton have been disinfected at these fumigating plants under the strict supervision of inspectors of the Federal Horticultural Board. (See pp. 11-12.)

On the Mexican border, fumigation houses which will accommodate from 1 to 15 freight cars have been erected by this department at four of the principal ports of entry. A similar house for the fumigation of wagons, automobiles, etc., has also been constructed at Del Rio, Tex., and a 14-car fumigation house is being erected at Nogales, Ariz.

Federal plant quarantine inspectors are now stationed at all of the important Mexican border ports of entry in Texas, Arizona, and California. During the period under review, 25,972 cars were carefully examined in the freight yards of the Mexican towns opposite the American ports of entry, to determine their freedom from cotton seed, and of this number, 15,524 were fumigated with hydrocyanic-acid gas, immediately upon crossing the border, in houses constructed for the purpose. At Del Rio, Tex., where there are no railroad connections with Mexico, 22,595 vehicles of various descriptions were inspected, 23 of which were fumigated on account of the presence of cotton seed.

A fee is collected for the fumigation of the cars, representing approximately the cost of the chemicals and labor incident to the operation of the houses. This cost, however, does not include the salaries of inspectors. From October 1, 1919, to June 30, 1921, \$96,299.50 has been collected from such fees and turned into the Treasury.

The inspection work at the footbridges in cooperation with the customs officials located in Brownsville, Laredo, Eagle Pass, and El Paso, Tex., as well as the boundary line at Nogales, Ariz., has been continued, and numerous interceptions have been made. Such examinations have been not only for the purpose of controlling the possible entry of cotton and cotton seed, but also for the enforcement of other quarantines involving Mexico on account of fruit flies and insect or disease enemies of various crops. A total of 28,048 interceptions of contraband material have been made as follows: Avocados, 7,072; oranges, 3,563; mangos, 1,839; sugar cane, 3,326;

cotton, 1,954; corn, 1,988; sweet limes, 1,347; potatoes, 625; peaches, 1,274; guavas, 2,039; sapotes, 207; plums, 245; sweet potatoes, 357; grapefruit, 412; and miscellaneous plants, 1,799.

THE EUROPEAN CORN BORER QUARANTINE.

The determination of the occurrence of the corn borer over wide areas in the Province of Ontario, Canada, made it necessary to amend the foreign quarantine relative to this pest so as to bring under restriction importations from Canada of various products in addition to corn which are known to be possible means of spreading this pest. Following the hearing of June 28, 1921, such revision was issued effective July 21, 1921.

The regulations under the domestic European corn-borer quarantine were amended effective January 15, 1921, to eliminate, during the period from January 1 to June 1, the requirement of inspection and certification of celery, green beans in the pod, beets with tops, spinach, rhubarb, and oat and rye straw as such or when used as packing. There appeared to be no risk, during this period, from such products, even though grown in the infested area, of distributing the corn borer, and the action was taken to eliminate the cost of inspection during the season indicated.

The corn borer was determined late in 1920 as occurring in Maine, adjacent to the infested districts in New Hampshire and Massachusetts. A thoroughgoing clean-up was made of the infested area and no recurrence has been so far determined for 1921.

During the summer (1921) the corn borer was found to be established on a series of islands crossing Lake Erie, evidently infested from the Ontario section, and possibly crossing in this manner had effected a foothold in 26 Ohio townships bordering the lake, extending to within about 60 miles of the Indiana line. A similar infestation probably originating from the western New York area, was determined in the Pennsylvania district adjacent to the lake, involving 11 townships. The infested area in western New York now numbers 14 townships.

Following the determination of the infestation of these new districts, an important conference on the European corn borer to discuss future policy was conducted under the auspices of the United States Department of Agriculture at Sandusky, Ohio, September 15 and 16, participated in by the State entomologists and agricultural control officials of many of the Eastern and Middle States. As a follow-up to this conference, a formal hearing has been called for October 11 in Washington to consider further Federal quarantine action which may be advisable with respect to this pest in view of the important change in the situation indicated by its spread as now determined.

MODIFICATION OF THE GYPSY MOTH AND BROWN-TAIL MOTH QUARANTINE.

An informal conference on the gypsy moth and brown-tail moth was held in Washington May 27, 1921. Following this conference the quarantine (No. 45) with respect to these pests was amended June 8, 1921, effective on and after July 1, 1921, to make the quarantine lines correspond with the spread or recession of these insects dur-

ing the previous 12 months. During this period (1920) there was considerably more spread westward of the gypsy moth than had been the case in several previous years. This extension necessitated the inclusion of 62 new towns distributed throughout New Hampshire, Vermont, Massachusetts, and Connecticut.

As had been the case during recent years, it was possible to make a considerable reduction in the area quarantined on account of the brown-tail moth. A good deal of this decrease is due to the energy of the citizens in clean-up work, to the action of parasites, and to the heavy winter killing of the larvæ in the webs.

With respect to the new areas in New Jersey, New York, and Pennsylvania, which were determined as infested in 1920-21 by the gypsy moth, it was believed that the quarantine and control action which had been taken by these three States with respect to the known infested area made it unnecessary at this time to extend the Federal quarantine to these States, particularly as the enforcement of the State quarantines was being maintained in close cooperation with the Federal Horticultural Board and the Bureau of Entomology of the United States Department of Agriculture. A fully explanatory statement on the existing State and Federal control was issued for the information of the State quarantine officials.

The origin of the infestation in New York, New Jersey, and Pennsylvania, with minor exceptions, is clearly traced to the importation of an enormous block of blue spruce from Holland for ornamental plantings by a large estate near Somerville, N. J., shortly prior to the enactment of the plant quarantine law of 1912. The insect thus introduced had slowly developed in the center of this block of blue spruce and had begun its rapid spread only a year or two before the discovery of the infestation in 1920. The other points of infestation in New Jersey, New York, and Pennsylvania were clearly traced to shipments of blue spruce from this original source of infestation. This history is a very significant illustration of the risks from the large importations of ornamentals of this sort which had been made in past years for the adornment of private estates and which are now fully controlled under the enforcement of a quarantine very much limiting and regulating the entry of such stock.

THE JAPANESE BEETLE QUARANTINE.

The Japanese-beetle quarantine is being enforced by the Bureau of Entomology in cooperation with this board and with the States concerned, New Jersey and Pennsylvania. A revision of this quarantine was issued effective December 1, 1920, limiting the requirements of inspection and certification with respect to cut flowers to the period between June 15 and November 1. The Federal quarantine has been supplemented by quarantines of like provision issued by these States providing for intrastate control.

At the close of the season of 1920 the area known to be infested by this beetle covered approximately 81 square miles in New Jersey and 10 square miles in Pennsylvania. This territory includes in New Jersey 1,075 farms shipping produce and 89 nurseries and greenhouses shipping various products, and in Pennsylvania 550 farms and 128 nurseries.

The object of the Federal and State quarantine-control action with respect to this pest is to limit or delay spread. The habits of

the insect are such that efforts to prevent local spread can never be made highly effective, and it is perfectly apparent that a pest of this character once introduced and fairly firmly and widely established must be reckoned with sooner or later as a permanent tax on the agriculture of the country. The justification for the continuance of the Federal and State quarantine work is determined by the amount of repression which it is possible to effect by such control, but this pest may reach at any time a stage where such control can not be continued with profit. The hope, therefore, in the future is in the determination of direct control measures by spraying or other means and by the introduction and encouragement of natural enemies.

THE DATE-SCALE QUARANTINE.

The Federal Horticultural Board, in cooperation with the Bureau of Plant Industry of this department, has been conducting work looking to the extermination of two important date scales which menace the future successful development of the date industry in southern California and Arizona. The work already done indicates that complete eradication of at least one and perhaps both of these pests can be accomplished if it is made possible to inspect the groves as frequently as necessary and to burn the infested outer portions of, or otherwise clean, the infested plants. To bring this work of control and extermination to a conclusion Congress was asked for a specific appropriation of \$15,000, of which \$5,000 was to be immediately available. Under this appropriation this work has been reorganized and placed on a much better basis. It involves both the practical field work of extermination and also provision for a biological study of these pests. The latter feature of the work is being conducted in cooperation with the Bureau of Entomology.

THE CITRUS BLACK-FLY QUARANTINE.

The occurrence of an important pest of citrus and many other plants, the citrus black fly, in Cuba, the Bahamas, Jamaica, Canal Zone, and other countries, led to widespread fears that this pest might gain entrance into Florida and other citrus regions of the United States through the agency of imported fruits and vegetables. Following a hearing on this subject conducted at Washington, December 20, 1920, a quarantine was promulgated February 16, 1921, effective on and after April 1, 1921, under which the entry of fruits and vegetables is regulated from Cuba, the Bahamas, Jamaica, Canal Zone, Costa Rica, India, Philippine Islands, Ceylon, and Java. This quarantine applies to fruits and vegetables in the raw or unprocessed state and to plants or portions of plants used as packing material in connection with the shipment of such fruits and vegetables. An important feature of the quarantine is to provide for the movement of clean fruit and vegetables—in other words, uncontaminated with leafage or other portions of plants which are apt to convey the black fly. This quarantine places no real bar on the movement of fruits and vegetables from these countries, but provides for desirable cleanliness in connection with shipments both as to the containers and to the carriers—cars or ships. Hearty cooperation in the enforcement of this quarantine is being had with Cuba and the other principal countries and islands con-

cerned to the south of us. Detailed instructions for the enforcement of this quarantine and regulations thereunder have been distributed and are given permanent record in the Service and Regulatory Announcements.

THE MEXICAN BEAN BEETLE QUARANTINE.

The Mexican bean beetle, which had been a rather important enemy of the bean crop for many years in New Mexico, Arizona, and Colorado, and was supposed to be rather climatically limited to that general region, suddenly developed wide foothold in the State of Alabama, supposedly carried to that State in shipments of western alfalfa hay. At the earnest request of the authorities of that and other States, a Federal quarantine was declared covering the invaded area in Alabama and an appropriation was given to the Bureau of Entomology of the department for the enforcement of this quarantine in cooperation with the State authorities and this board. A Federal quarantine on account of this pest was promulgated April 8, 1921, effective on and after May 1, 1921, following a public hearing in Washington October 11, 1920.

As a result of surveys conducted during the spring and summer of 1921, it developed that this pest not only involved a much wider area in Alabama than had been previously determined but that it also occurred in the States of Georgia, Tennessee, Kentucky, and South Carolina, indicating a possibly fairly general dissemination throughout the South beyond any hope of extermination or even effective quarantine control, and with the approval of the States concerned, the Federal quarantine was revoked July 23, 1921.

THE CITRUS FRUIT QUARANTINE.

The canker disease of citrus fruit was officially reported to the board as occurring in Australia. It therefore seemed desirable to extend the existing quarantine to cover not only Australia but also Tasmania and New Zealand on account of the close commercial relations between these three countries. To consider the advisability of extending this quarantine, a call was issued for and a public hearing was duly conducted in Washington July 19, 1921. Quarantine action has been deferred to give opportunity to secure some additional information which is needed.

The existing citrus-fruit quarantine on account of the canker disease promulgated June 27, 1917, covers eastern and southeastern Asia, the Malayan Archipelago, Philippine Islands, Oceania (except Australia, Tasmania, and New Zealand), Japan (including Formosa and other islands adjacent to Japan), and the Union of South Africa. During the past year citrus canker has been taken on grapefruit and oranges from China and India on several occasions at the port of Seattle.

THE POTATO WART DISEASE.

The extensive surveys conducted in 1920-21 have pretty well eliminated the chance of country-wide infestation at this time by the potato wart disease, and it seems to be pretty clearly established that the disease is now limited to comparatively small areas in the States of Pennsylvania, West Virginia, and Maryland. The only

new infestations are those determined in three villages near Frostburg, in western Maryland, which lie practically between the western Pennsylvania and the West Virginia infested districts, and are similarly mining sections. Some one thousand individual garden plats in these three States have been determined as infested, but the total areas of these plats aggregate less than 100 acres. The three invaded States are enforcing effective quarantine measures, and as these seemed adequate for the protection of surrounding States, no domestic Federal quarantine on account of this disease has been promulgated.

The survey work to determine spread or possible new centers of infestation and the research work with respect to the disease and its control have been carried on as heretofore in cooperation with the Bureau of Plant Industry, through a detail to the board of experts from that bureau.

Important progress has been made in the research work which involves in general the following investigations: (1) That of developing successful methods of soil sterilization by heat, chemicals, or other means, all of which are being tested singly and in combination; (2) the testing of both American and imported varieties of potatoes for reaction to the disease and adaptability to the climates and soils of the infested and adjacent regions, together with studies on the permanence of immunity; (3) the study of the character of immunity in inheritance and the production by breeding of new immune varieties better adapted to these regions; (4) determination of the effect of climate and soil conditions upon the distribution and development of the disease; and (5) a painstaking study of the life history of the organism.

Very important results have been obtained from these studies, notably the immunity to the disease determined for certain important classes of potatoes and the possibilities of local control by limiting plantings to such immune varieties and by direct corrective work. This outcome has largely eliminated the fear that the wart disease might follow the same destructive course in this country that it has in portions of Europe. The continued necessity for thoroughgoing survey work and for the strictest administration of local quarantine regulations is none the less existent, as well as the research work which may ultimately develop means for the eradication of the disease.

The regulations governing the importation of potatoes into the United States were revised and reissued February 16, 1921, effective March 1, 1921. Only minor changes were made in this revision, which was more particularly to incorporate three amendments which have been promulgated since the issuance of the original regulations under the order restricting the entry of potatoes from certain countries.

UNITED STATES QUARANTINED TO PROTECT HAWAII FROM ENTRY OF PESTS.

A quarantine restricting the movement from the United States into Hawaii of sugar cane, corn (other than shelled corn), cotton and alfalfa plants, and fruits of the avocado and papaya in the natural or raw state, was issued at the earnest request of the Hawaiian authori-

ties. This quarantine is designed to guard against the entry into Hawaii of the articles named merely as passengers' baggage, or as ships' stores. Commercial importations are safeguarded under Territorial laws, and mail shipments by terminal inspection recently inaugurated.

Under this quarantine, regulations have been issued providing for inspection at the ports of Hawaii, with respect to ships or vessels from the United States, of ships' stores and the baggage and effects of passengers or crews for the purpose of ascertaining whether any of the fruits, vegetables, or other articles covered by the foregoing quarantine are contained in such ships or vessels or whether there remains any infestation from such fruits, vegetables, or other articles. The regulations also provide for necessary disinfection and the posting of warning notices.

COTTON, COTTON WASTE, COTTON BAGGING, AND COTTONSEED PRODUCTS IMPORTATIONS.

There was a decided reduction in the importations of cotton during the year. The total number of bales entered was 221,303, which is less than half the number entered during the fiscal year 1919-20, namely, 595,765. However, the importations exceed those of the fiscal years 1916-17, 1917-18, and 1918-19.

With respect to cotton waste, it is interesting to note that while the importations of cotton decreased the waste entered exceeded last year's importations by 20,000 bales and was only about 4,500 bales less than the maximum number entered in any preceding year. The total importations of waste amounted to 36,876 bales.

The importations of bagging show a decided decrease, viz, 74,076 bales, as against 163,383 bales in 1919-20. The importations of 1920-21 exceeded, however, the importations of any fiscal year other than the one immediately preceding it.

The only foreign cotton seed now permitted to enter the United States is that originating in the Imperial Valley, Lower California, Mexico. The amount imported this year is nearly twice that of the previous year.

Cottonseed products, including cottonseed oil, are prohibited entry from Mexico, except when they originate in mills in the Laguna district. The entry of such products during the last fiscal year shows a marked decrease in the importations for the preceding year, indicating the growth of demand for home consumption.

The following tables indicate, respectively, the importations of cotton, cotton waste, bagging, cotton seed, and cottonseed products during the fiscal year.

Ginned cotton, by ports of entry and country of origin, 1920-21.

(Bales.)

Country.	Boston.	Calexico.	New Orleans.	New York.	San Francisco.	St. Albans.	Total.
Brazil.....				9			9
British West Indies.....				57			57
China.....	2,106			10,476	435		13,017
Colombia.....				10			10
Dutch East Indies.....				788			788
Egypt.....	57,265			9,788			67,053
Haiti.....				4,531			4,531
India.....	1,542			7,158			8,700
Mexico.....		88,047		300			88,347
Nicaragua.....				1			1
Peru.....	488			31,698	4		32,190
Porto Rico.....				1,247			1,247
Santo Domingo.....				301			301
Turkey.....				4			4
United States (continental).....	802		105	2,501		1,442	4,850
Venezuela.....				141			141
(Origin unknown).....				57			57
Total.....	62,203	188,047	105	69,067	439	1,442	221,203

¹ Includes 11,457 bales unginned cotton from Imperial Valley, Lower California, Mexico.

Cotton waste, by country of origin and port of entry, 1920-21.

(Bales.)

Country.	Boston.	De-troit.	Galveston.	New Orleans.	New York.	Philadelphia.	Portland.	Richmond.	San Francisco.	Savannah.	Seattle.	Total.
Belgium.....	40				78							118
Canada.....	525				41	1,900		68				2,534
China.....	160				2,173		320				200	2,853
England.....	983		200		2,190	4,787				200		8,260
France.....					8,175	70						8,245
Germany.....					741	126						867
Holland.....					897	1,270						2,167
India.....					1,500							1,500
Italy.....	3				5,141	69						5,213
Japan.....	368				3,138		100		5		2	3,613
Scotland.....					461							461
Switzerland.....					238							238
United States.....	302	40		9	59	267						677
Total.....	2,381	40	200	9	24,862	8,489	420	68	5	200	202	36,876

Bagging, by country of origin and port of entry, 1920-21.

(Bales.)

Country.	Baltimore.	Boston.	New Orleans.	New York.	Norfolk.	Philadelphia.	Port Huron.	Total.
Algeria.....				107				107
Belgium.....	481	4,529	2,874	6,290		1,201		15,375
Canada.....		1,285	386	113			1,452	3,236
Denmark.....				868				868
Egypt.....				48				48
England.....	1,905	12,411	4,798	4,249	390	5,695		29,448
France.....			566	8,409		1,263		10,238
Germany.....		350		465		141		956
Holland.....	516	943	773	3,487	165	2,055		7,939
Italy.....		697		2,909				3,606
Panama.....				17				17
Scotland.....		575		119				694
Spain.....				1,205				1,205
Switzerland.....				339				339
Total.....	2,902	20,790	9,397	28,625	555	10,355	1,452	74,076

Cotton seed and cottonseed products, 1920-21.

Port.	Cotton seed.	Cotton-seed cake.	Cotton-seed meal.
	<i>Tons.</i>	<i>Tons.</i>	<i>Tons.</i>
Calexico.....	41,904		
Eagle Pass.....		4,524	
Laredo.....		130	
New York.....			457
Portland.....		458	
San Francisco.....		4,581	555
Total.....	41,904	9,703	1,012

NURSERY STOCK, PLANT AND SEED QUARANTINE.

Quarantine No. 37, restricting the entry of foreign plants and plant products for propagation, has been in force for two years. Some minor amendments have been made to this quarantine from time to time. As a result of the practical working out of the quarantine during this period, it became desirable to make a considerable number of changes in the regulations. These, together with the earlier amendments, are embodied in a revision of the regulations effective on and after August 1, 1921.

The important changes are in Regulations 2 and 7. The requirement is now made with respect to importations under Regulation 2 that they shall be free from sand, soil, or earth. This was necessitated from the occasional importation of food products with earth, as, for example, roots of horseradish. Under Regulation 7 inspection must now be made at the time of packing of all nursery stock and other plants and seeds and the certificate of inspection must include also certification of packing materials and that the plants have been washed and are free from soil.

In addition to the unlimited commercial entry of certain classes of plants which is permitted under Quarantine No. 37, it is perhaps now generally understood that provision is also made under Regulation 14 of this quarantine for the importation of all other plants whatsoever in quantities sufficient to meet any legitimate introduction needs. In other words, for the purpose of keeping the country supplied with any new variety or any necessary propagating stock. For such purposes 622 permits have been issued during the year and importations have already been made under 429 of these permits. The nature and amount of these importations are indicated in the following table:

Special permit importations for the year 1920-21.

Class of plants.	Permits issued.		Permits imported.	
	Num-ber.	Quantity.	Num-ber.	Quantity.
Gladioli.....	207	6,119,968	146	3,309,375
Iris.....	95	5,937,413	65	4,035,247
Peonies.....	72	120,815	37	14,060
Other bulbs, rhizomes, and roots.....	51	1,056,117	34	474,466
Ornamentals.....	69	545,650	28	163,888
Roses.....	50	38,787	35	31,774
Orchids.....	62	16,851	45	7,723
Herbaceous plants.....	45	123,454	27	90,337
Fruit trees.....	6	563	2	114
Dahlias.....	55	5,395	41	2,650
Total.....		13,965,013		8,132,634

The three tables following record the importations of nursery stock and other plants and seeds, of which unlimited commercial importation under Regulation 3 is provided for in the quarantine, namely, (1) importations of fruit and rose stocks; (2) importations of bulbs; and (3) importations of tree seeds.

Country of origin and nature of importations under regulation 3, Quarantine 37.

FRUIT AND ROSE STOCKS.

(Figures indicate number of plants.)

Country of origin.	Fruit stocks.						Rose stocks.	Totals by countries.
	Apple.	Cherry.	Pear.	Plum.	Quince.	All other fruits.		
Austria.....		1,018						1,018
Czechoslovakia.....	150		50			3		203
Costa Rica.....						200		200
England.....	100						1,181,100	1,181,200
France.....	4,396,450	8,003,698	3,214,104	2,000,375	1,033,250	344,890	2,176,282	21,172,049
Holland.....	584,100	834,648	469,070	285,133	29,000	25,000	2,264,010	4,540,961
Ireland.....							269,800	269,800
Italy.....				103,000		35,309		138,309
Japan.....			3,000					3,000
Mexico.....						1,500		1,500
Scotland.....							43,000	43,000
Total.....	4,980,800	8,889,364	3,686,224	2,388,508	1,065,250	406,902	5,934,192	27,351,240

BULBS.

(Figures indicate number of bulbs.)

Country of origin.	Crocus.	Hya- cinth.	Lily.	Lily of the valley.	Narcis- sus.	Tulip.	Unclassi- fied.	Totals by countries.
Azores.....			30,000					30,000
Bermuda.....			102,986					102,986
Canary Islands.....			6,172					6,172
China.....					4,343,136			4,343,136
England.....		50	3,282		1,079,069	200		1,082,601
France.....	10,500	3,609,666	193,283		40,966,054	259,910		45,039,413
Germany.....			15,803,175	856,850				16,660,025
Holland.....	5,504,305	18,959,175	75,969	2,749,896	31,557,816	54,815,233	1,415,369	115,077,763
Ireland.....					1,000			1,000
Italy.....							3,341,000	3,341,000
Japan.....			6,275,656		9,120			6,284,786
Total.....	5,514,805	22,568,891	22,490,533	3,606,746	77,956,195	55,075,343	4,756,369	191,968,882

TREE SEEDS.

(Figures indicate pounds.)

Country of origin.	Apple.	Cherry.	Nuts.	Orna- mental and tree.	Palm.	Pear.	Plum.	All other fruit seeds.	Totals by coun- tries.
Australia.....				5	189,920				189,925
Austria.....				1,599			900		2,499
Brazil.....					2,438				2,438
British Guiana.....					100				100
Canada.....				35					35
Costa Rica.....					75				75
Cuba.....					1,000				1,000
China.....					150				150
England.....					15,000				15,000
France.....	20,728	362	107	2,293	310	546	8,118	68	32,532
Germany.....	2,025	75		1,200		120	394		3,814
Holland.....	3,000			1		25	360	1	3,387
India.....				1,178					1,178
Italy.....				1,436					2,147
Japan.....		1	282	1,277		8,574	94	379	10,607
Total.....	25,753	438	389	9,024	208,993	9,265	10,577	448	264,887

IMPORTATIONS OF OTHER RESTRICTED PLANT PRODUCTS.

In addition to the foregoing record of importations of plants and plant products for propagation, the board has supervised the importation, under quarantine, of 154,635 sacks of potatoes, chiefly from Denmark; upward of 20,000 crates of oranges, chiefly from Japan; 1,142 bags of wheat from Japan and Australia; and 29,634 bags of corn, originating in Manchuria.

The board has also supervised and safeguarded the importation for immediate exportation in bond to other countries of considerable quantities of prohibited or restricted plants and plant products.

The enforcement of Quarantine No. 49, on account of the black fly, as elsewhere noted (p. 8), has brought under restriction and regulation practically all fruit and vegetable importations from Cuba, the Bahamas, Jamaica, Canal Zone, Costa Rica, India, Philippine Islands, Ceylon, and Java. This quarantine has been in operation since April 1, and the available records of the importations represent only a fraction of the year, and the tabulation of them has therefore been omitted in this report.

INSPECTION OF IMPORTED PLANTS AND PLANT PRODUCTS.

The records of this board indicate that during the fiscal year 324 recognized species and 134 insects identified to the genus only, brought in with importations of plants, were intercepted by State and Federal inspectors. In spite of the reduction in the number of miscellaneous plants entering the United States, the records show that there were more insects intercepted during the fiscal year under review than has been the case any year since 1912. This has resulted from the operation of Quarantine No. 37, which brings all importations of ornamentals under special permit with inspection at Washington as a condition of entry by the highly trained and efficient inspection personnel of the board, and in part also by greater laxity in the foreign inspection and certification service. The latter condition has led to strong representations and warnings being sent to the proper officials of the various foreign countries at fault, and an improvement in the condition of materials offered for import hereafter is anticipated.

In the early spring of 1921 French fruit seedlings began arriving infested with nests of the brown-tail moth, and as soon as this condition was noted the various State and Federal inspectors were urged to give all such shipments very careful examination. As a result of this inspection, 182 brown-tail nests were found in 41 French shipments, in contrast with 63 infested French shipments which have arrived during the last nine years. A single nest of the brown-tail moth was also intercepted on fruit seedlings from Holland, and nests of the white tree pierid were reported on 20 French shipments of fruit seedlings.

Other interceptions of interest include: The sweet-potato weevil from the Bahama Islands and Jamaica, and two injurious weevils infesting yams from Jamaica; the avocado stenoma from the Canal Zone, Costa Rica, and Spanish Honduras; an avocado weevil, *Conotrachelus perseae*, from Mexico, and also an unrecognized species of Heilipus in avocados from Mexico; the West Indian fruit fly from Cuba, Mexico, and Jamaica; the citrus black fly from Cuba, British

West Indies, and Jamaica; the Mexican fruit fly from Mexico; the sorrel cutworm from France; the lesser bulb fly from Holland and France; the sugar-cane borer, *Metamasius sericeus* Oliv., in shipments of bananas from Cuba, Costa Rica, Spanish Honduras, and Guatemala; the pink bollworm from Mexico, Egypt, India, England, and Holland; the European corn borer in broom corn from Italy; the cotton-boll weevil from Costa Rica; the dictyosperm scale, *Chrysomphalus dictyospermi*, from British Honduras, Bahama Islands, Dominica, France, Bermuda, Jamaica, Cuba, Nicaragua, Spanish Honduras, and Costa Rica; what appears to be an injurious potato weevil, probably *Trypopermnon latithorax*, in Irish potatoes from Mexico, and 82 recognized species of scale insects from various parts of the world.

A long list of plant diseases have also been intercepted during the year in connection with imported plants and plant products. These include important diseases of citrus and other fruits, potato, sugar cane, bamboo, azalea, rhododendron, and other ornamentals. Important among these are several interceptions of citrus canker, a sugar-cane disease new to the United States, and a new potato disease, which has hitherto been known only in England and Scotland. A good many of the other diseases intercepted were either new or not now widely spread in the United States.

INSPECTION OF THE PLANT INTRODUCTION GARDENS.

As in the past, the inspectors of this board have continued to examine the various plant-introduction gardens maintained by the Department of Agriculture at Yarrow and Bell, Md., Miami and Brooksville, Fla., Savannah, Ga., and Chico, Calif., and the field station of the Office of Dry Land Agriculture at Mandan, N. Dak.

PORT-INSPECTION SERVICE.

The port-inspection service is the direct means of enforcing the various foreign quarantine and restrictive orders and of regulating and safeguarding the entry of products under restriction, and is necessarily a continuing and growing service, as a result of the promulgation from time to time of new quarantine and restrictive orders. The work at minor ports of entry where the volume of imports is not sufficient to warrant a resident inspector is taken care of by a detail of inspectors from time to time. Maintenance of a regular office at the port of Norfolk, Va., has been discontinued, inasmuch as restricted products are rarely offered for entry at that port, and an office has been opened at Baltimore, Md.

An important part of this work is the inspection of vessels for contraband material, not only as cargo, but also in passengers' baggage, ships' stores, or crews' effects. The number of vessels by ports of entry thus inspected during the year is as follows: Boston, 764; Philadelphia, 889; Baltimore, 254; Norfolk, 1,203; New Orleans, 2,135; Seattle, 128; and Portland, 90; a total of 5,463 vessels. At New York the inspection service is not adequate to make an examination of all the vessels entering that port, but occasional examinations are made of passengers' baggage, ships' stores, and the quarters and effects of crews. The bulk of the work at that port is the examination and safeguarding of commercial importations. It undoubt-

edly would be highly desirable to have the service so strengthened that the vessel inspection could be made as complete at New York as it now is at most of the other ports. Naturally the risk from importations is much greater, however, at ports which have more direct connection with interior cultural conditions than has New York.

In all, 1,119 lots of contraband materials were intercepted as follows: Plants, 536; sugar cane, 132; sweet potatoes, 159; citrus fruits, 154; cotton, 19; corn, 24; avocados, 79; mangos, 15; and paddy rice, 1. These interceptions indicate plainly the need for this service.

As in former years, the State plant quarantine inspectors of California, Florida, and Mississippi have been carried as collaborators of this board, and very valuable aid has thus been rendered to the Federal service. The efficiency developed at the various ports of entry is also in a large measure due to the hearty cooperation and assistance given by the customs officials.

TERMINAL INSPECTION OF INTERSTATE MAIL SHIPMENTS OF PLANTS AND PLANT PRODUCTS.

Terminal inspection of mail shipments of plants and plant products, authorized by the act of March 4, 1915, is conducted entirely at the expense of the States concerned. During the year the State of Mississippi, the District of Columbia, and the Territory of Hawaii instituted such inspection. The States of California, Arizona, Montana, Oregon, Washington, and Arkansas had previously, in the order named, taken advantage of the provisions of the act referred to. Not only are numerous plant pests intercepted by this system of inspection, but also occasional shipments of plants and plant products mailed in violation of Federal or State quarantines.

NEW PLANT QUARANTINES.

The following foreign and domestic quarantines and other restrictive orders have been promulgated or revised during the year:

Domestic.—The European corn-borer quarantine (a revision), the nursery stock, plant, and seed quarantine (a revision), the Japanese-beetle quarantine (a revision), the gipsy-moth and brown-tail-moth quarantine (a revision), the pink-bollworm quarantine (a revision), the Mexican bean-beetle quarantine, and the quarantine restricting the movement from the United States into Hawaii of sugar cane, corn, cotton, alfalfa, and fruits of avocado and papaya.

Foreign.—The citrus black-fly quarantine, and the European corn-borer quarantine (a revision).

Other restrictive orders.—Regulations governing the importation of potatoes into the United States (a revision), and rules and regulations governing (1) entry for immediate export, (2) entry for immediate transportation and exportation in bond, and (3) safeguarding the arrival, at a port where entry or landing is not intended, of prohibited plants and plant products (a revision).

CONVICTIONS FOR VIOLATIONS OF THE PLANT QUARANTINE ACT.

The solicitor of the department reported, during the past year, the conviction of 11 shippers for violations of the plant quarantine act, 1 in regard to the Mediterranean fruit fly and the melon-fly quarantine, 4 in regard to the gipsy-moth and brown-tail-moth quarantine, and 6 in regard to the white-pine blister-rust quarantine. Fines aggregating \$262 were imposed.

LIST OF CURRENT QUARANTINE AND OTHER RESTRICTIVE ORDERS.

QUARANTINE ORDERS.

The numbers assigned to these quarantines indicate merely the chronological order of issuance of both domestic and foreign quarantines in one numerical series. The quarantine numbers missing in this list are quarantines which have either been superseded or revoked. For convenience of reference these quarantines are here classified as domestic and foreign. The record includes quarantines up to October 1, 1921.

DOMESTIC QUARANTINES.

Date palms.—Quarantine No. 6: Regulates the interstate movement of date palms or date-palm offshoots from Riverside County, Calif., east of the San Bernardino meridian; Imperial County, Calif.; Yuma, Maricopa, and Pinal Counties, Ariz.; and Webb County, Tex.; on account of the Parlatoria scale (*Parlatoria blanchardi*) and the Phoenicococcus scale (*Phoenicococcus marlatti*).

Hawaiian fruits.—Quarantine No. 13, revised: Prohibits or regulates the importation from Hawaii of all fruits and vegetables, in the natural or raw state, on account of the Mediterranean fruit fly and the melon fly.

Sugar cane.—Quarantine No. 16: Prohibits the importation from Hawaii and Porto Rico of living canes of sugar cane, or cuttings or parts thereof, on account of certain injurious insects and fungous diseases.

Five-leaved pines, Ribes and Grossularia.—Quarantine No. 26, as amended: Prohibits the interstate movement of five-leaved pines, currant and gooseberry plants from all States east of and including the States of Minnesota, Iowa, Missouri, Arkansas, and Louisiana to points outside of this area; prohibits, further, (1) the interstate movement of five-leaved pines and black-currant plants to points outside the area comprising the States of Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, and New York, and (2) to protect the State of New York, the movement from the New England States, on account of the white-pine blister rust.

Sweet potato and yam.—Quarantine No. 30: Prohibits the movement from the Territories of Hawaii and Porto Rico into or through any other Territory, State, or District of the United States of all varieties of sweet potatoes and yams (*Ipomoea batatas* and *Dioscorea* spp.), regardless of the use for which the same are intended, on account of the sweet-potato weevil (*Cylas formicarius*) and the sweet-potato scarabee (*Euscepes batatae*).

Banana plants.—Quarantine No. 32: Prohibits the movement from the Territories of Hawaii and Porto Rico into or through any other Territory, State, or District of the United States of any species or variety of banana plants (*Musa* spp.), regardless of the use for which the same are intended, on account of two injurious weevils, *Rhabdonemus obscurus* and *Metamasius hemipterus*.

Black stem rust.—Quarantine No. 38: Prohibits the movement interstate to any point outside of the quarantined area of the common barberry and its horticultural varieties, as well as certain other species of Berberis and Mahonia, on account of the black stem rust of wheat, oats, barley, rye, and many wild and cultivated grasses.

European corn borer.—Quarantine No. 43, as amended: Regulates the movement interstate to any point outside of the quarantined area of corn and broom corn (including all parts of the stalk), celery, green beans in the pod, beets with tops, spinach, rhubarb, oat and rye straw as such or when used as packing, cut flowers or entire plants of chrysanthemum, aster, cosmos, zinnia, hollyhock, and cut flowers or entire plants of gladiolus and dahlia, except the bulbs thereof, without stems, on account of the European corn borer (*Pyrausta nubilalis*).

Gipsy moth and brown-tail moth.—Quarantine No. 45, as amended: Regulates the movement interstate to any point outside of the quarantined towns and territory, or from points in the generally infested area to points in the lightly infested area, of stone or quarry products, and of the plants and the plant products listed therein. The quarantine covers all the New England States.

Hawaiian and Porto Rican cotton, cotton seed and cottonseed products.—Quarantine No. 47: Regulates the movement of cotton, cotton seed, and cottonseed products from Hawaii and Porto Rico on account of the pink bollworm and the cotton blister mite, respectively.

Japanese beetle.—Quarantine No. 48, as amended: Regulates the movement interstate to any point outside of certain portions of the counties of Burlington and Camden, N. J., and certain portions of the counties of Philadelphia and Bucks, Pa., of (1) farm, garden, and orchard products of all kinds; (2) grain and forage crops of all kinds; (3) nursery, ornamental, and greenhouse stock and all other plants, includ-

ing bulbs and cut flowers, and (4) soil, compost and manure other than fresh manure, on account of the Japanese beetle (*Popillia japonica*).

United States quarantined to protect Hawaii.—Quarantine No. 51: Regulates the movement from the United States to the Territory of Hawaii, as ships' stores or as baggage or effects of passengers or crews, of sugar cane, corn, cotton, alfalfa, and the fruits of the avocado and papaya.

Pink bollworm.—Quarantine No. 52: Prohibits the interstate movement from the infested and regulated areas of Texas, Louisiana, and New Mexico of cotton, including all parts of the plant, seed cotton, cotton lint, linters, gin waste and all other forms of cotton lint, cotton seed, cottonseed hulls, cottonseed cake and meal, bagging and other containers of the articles enumerated, and also railway cars, boats, and other vehicles which have been used in conveying cotton and cotton products grown in the infested districts or which are fouled with such products, hay and other farm products, farm household goods, and farm equipment, except as provided in the rules and regulations supplemental thereto, on account of the pink bollworm of cotton (*Pectinophora gossypiella* Saunders).

FOREIGN QUARANTINES.

Irish potatoes.—Quarantine No. 3: Prohibits the importation of the common or Irish potato from Newfoundland; the islands of St. Pierre and Miquelon; Great Britain, including England, Scotland, Wales, and Ireland; Germany; and Austria-Hungary, on account of the disease known as potato wart.

Mexican fruits.—Quarantine No. 5, as amended: Prohibits the importation of oranges, sweet limes, grapefruit, mangoes, achras sapotes, peaches, guavas, and plums from the Republic of Mexico, on account of the Mexican fruit fly.

Five-leaved pines, Ribes, and Grossularia.—Quarantine No. 7, as amended: Prohibits the importation from each and every country of Europe and Asia, and from the Dominion of Canada and Newfoundland, of all five-leaved pines and all species and varieties of the genera *Ribes* and *Grossularia*, on account of the white-pine blister rust.

Cotton seed and cottonseed hulls.—Quarantine No. 8, as amended: Prohibits the importation from any foreign locality and country, excepting only the locality of the Imperial Valley, in the State of Lower California, Mexico, of cotton seed (including seed cotton) of all species and varieties, and cottonseed hulls, on account of the pink bollworm. Cotton and cotton seed from the Imperial Valley may be entered under permit and regulation.

Seeds of avocado or alligator pear.—Quarantine No. 12: Prohibits the importation from Mexico and the countries of Central America of the seeds of the avocado or alligator pear, on account of the avocado weevil.

Sugar cane.—Quarantine No. 15: Prohibits the importation from all foreign countries of living canes of sugar cane, or cuttings or parts thereof, on account of certain injurious insects and fungous diseases. There are no restrictions on the entry of such materials into Hawaii and Porto Rico.

Citrus nursery stock.—Quarantine No. 19: Prohibits the importation from all foreign localities and countries of all citrus nursery stock, including buds, scions, and seeds, on account of the citrus canker and other dangerous citrus diseases. The term "citrus," as used in this quarantine, includes all plants belonging to the subfamily or tribe *Citrateae*.

European pines.—Quarantine No. 20: Prohibits, on account of the European pine-shoot moth (*Evectria bucliana*), the importation from all European countries and localities of all pines not already excluded by Quarantine No. 7.

Indian corn or maize and related plants.—Quarantine No. 24, as amended: Prohibits the importation from southeastern Asia (including India, Siam, Indo-China, and China), Malayan Archipelago, Australia, New Zealand, Oceania, Philippine Islands, Formosa, Japan, and adjacent islands, in the raw or unmanufactured state, of seed and all other portions of Indian corn or maize (*Zea mays* L.), and the closely related plants including all species of Teosinte (*Euchlaena*), Job's tears (*Coix*), *Polytoca*, *Chionachne*, and *Sclerachne*, on account of the downy mildews and *Physoderma* diseases of Indian corn, except that Indian corn or maize may be imported under permit and upon compliance with the conditions prescribed in the regulations of the Secretary of Agriculture.

Citrus fruit.—Quarantine No. 28: Prohibits the importation from eastern and southeastern Asia (including India, Siam, Indo-China, and China), the Malayan Archipelago, the Philippine Islands, Oceania, (except Australia, Tasmania, and New Zealand), Japan (including Formosa and other islands adjacent to Japan), and the Union of South Africa, of all species and varieties of citrus fruits, on account of the citrus canker, except that oranges of the mandarin class (including satsuma

and tangerine varieties) may be imported under permit and upon compliance with the conditions prescribed in the regulations of the Secretary of Agriculture.

Sweet potato and yam.—Quarantine No. 29: Prohibits the importation for any purpose of any variety of sweet potatoes or yams (*Ipomoea batatas* and *Dioscorea* spp.) from all foreign countries and localities, on account of the sweet-potato weevils (*Cylas* spp.) and the sweet-potato scarabee (*Euscepes batatae*).

Banana plants.—Quarantine No. 31: Prohibits the importation for any purpose of any species or variety of banana plants (*Musa* spp.), or portions thereof, from all foreign countries and localities, on account of the banana-root borer (*Cosmopolites sordidus*). No restrictions are placed on the importation of the fruit of the banana.

Bamboo.—Quarantine No. 34: Prohibits the importation for any purpose of any variety of bamboo seed, plants, or cuttings thereof capable of propagation, including all genera and species of the tribe *Bambuseae*, from all foreign countries and localities, on account of dangerous plant diseases, including the bamboo smut (*Ustilago shiraiana*). This quarantine order does not apply to bamboo timber consisting of the mature dried culms or canes which are imported for fishing rods, furniture making, or other purposes, or to any kind of article manufactured from bamboo, or to bamboo shoots cooked or otherwise preserved.

Nursery stock, plants, and seeds.—Quarantine No. 37, revised, with regulations: Prohibits the importation of nursery stock and other plants and seeds from all foreign countries and localities, on account of certain injurious insects and fungous diseases, except as provided in the regulations. Under this quarantine the following plants and plant products may be imported without restriction: Fruits, vegetables, cereals, and other plant products imported for medicinal, food, or manufacturing purposes, and field, vegetable, and flower seeds. The entry of the following plants is permitted under permit: Lily bulbs, lily of the valley, narcissus, hyacinths, tulips, and crocus; stocks, cuttings, scions, and buds of fruits; rose stocks, including manetti, multiflora, briar rose, and rosa rugosa; nuts, including palm seeds, seeds of fruit, forest, ornamental, and shade trees; seeds of deciduous and evergreen ornamental shrubs, and seeds of hardy perennial plants.

Provision is also made for the issuance of special permits under safeguards to be prescribed in such permits for the entry in limited quantities of nursery stock and other plants and seeds not covered in the preceding lists for the purpose of keeping the country supplied with new varieties and necessary propagating stock.

Flag smut and take-all.—Quarantine No. 39, with regulations: Prohibits the importation of seed or paddy rice from Australia, India, Japan, Italy, France, Germany, Belgium, Great Britain, Ireland, and Brazil on account of two dangerous plant diseases known as flag smut (*Urocystis tritici*) and take-all (*Ophiobolus graminis*). Wheat, oats, barley, and rye may be imported from the countries named only under permit and upon compliance with the conditions prescribed in the regulations of the Secretary of Agriculture.

European corn borer.—Quarantine No. 41, with regulations: Prohibits the importation of the stalk and all other parts, whether used for packing or other purposes, in the raw or unmanufactured state, of Indian corn or maize, broom corn, sweet sorghums, grain sorghums, Sudan grass, Johnson grass, sugar cane, pearl millet, napier grass, teosinte and Job's tears, from all foreign countries and localities, except as provided in the rules and regulations supplemental thereto, on account of the European corn borer (*Pyrausta nubilalis*) and other dangerous insects and plant diseases.

Mexican corn.—Quarantine No. 42, with regulations: Prohibits the importation of Indian corn or maize from Mexico, except as provided in the rules and regulations supplemental thereto, on account of the contamination of such corn with cotton seed more or less infested with the pink bollworm.

Stocks, cuttings, scions, and buds of fruits.—Quarantine No. 44: Prohibits the importation of stocks, cuttings, scions, and buds of fruits from Asia, Japan, Philippine Islands, and Oceania (including Australia and New Zealand) on account of dangerous plant diseases, including Japanese apple cankers, blister blight, and rusts, and injurious insect pests, including the oriental fruit moth, the pear fruit borer, the apple moth, etc.

Citrus black fly.—Quarantine No. 49, with regulations: Prohibits the importation of fruits and vegetables, and of plants or portions of plants used as packing material in connection with shipments of such fruits and vegetables, or otherwise, from Cuba, the Bahamas, Jamaica, Canal Zone, Costa Rica, India, Philippine Islands, Ceylon, and Java, except as provided in the rules and regulations supplemental thereto, on account of the citrus black fly (*Aleurocanthus woglumi*).

OTHER RESTRICTIVE ORDERS.

The regulation of the entry of nursery stock from foreign countries into the United States was specifically provided for in the plant-quarantine act. The act further provides for the similar regulation of any other class of plants or plant products when the need thereof shall be determined. The entry of the plants and plant products listed below has been brought under such regulation:

Nursery stock.—The conditions governing the entry of nursery stock and other plants and seeds from all foreign countries and localities are indicated above under "Foreign Quarantines." (See Quarantine No. 37.)

Irish potatoes.—The importation of Irish potatoes is prohibited altogether from the countries enumerated in the potato quarantine. Potatoes may be admitted from other foreign countries under permit and in accordance with the provisions of the regulations issued under the order of December 22, 1913, bringing the entry of potatoes under restriction on account of injurious potato diseases and insect pests. Importation of potatoes is now authorized from the following countries: Denmark, Cuba, Bermuda, and the Dominion of Canada. The regulations issued under this order have been amended so as to permit, free of any restrictions whatsoever under the plant-quarantine act, the importation of potatoes from any foreign country into the Territories of Porto Rico and Hawaii for local use only and from the Dominion of Canada and Bermuda into the United States or any of its Territories or Districts.

Avocado, or alligator pear.—The order of February 27, 1914, prohibits the importation from Mexico and the countries of Central America of the fruits of the avocado, or alligator pear, except under permit and in accordance with the other provisions of the regulations issued under said order, on account of the avocado weevil. Entry is permitted through the port of New York only and is limited to the large, thick-skinned variety of the avocado. The importation of the small, purple, thin-skinned variety of the fruit of the avocado and of avocado nursery stock under 18 months of age, is prohibited.

Cotton.—The order of April 27, 1915, prohibits the importation of cotton from all foreign countries and localities, except under permit and in accordance with the other provisions of the regulations issued under said order, on account of injurious insects, including the pink bollworm. These regulations apply in part to cotton grown in and imported from the Imperial Valley, in the State of Lower California, in Mexico.

Corn.—The order of March 1, 1917 (Amendment No. 1, with regulations to Notice of Quarantine No. 24), prohibits the importation of Indian corn or maize in the raw or unmanufactured state from the countries and localities listed in Notice of Quarantine No. 24, except under permit and in accordance with the other provisions of the regulations issued under said order, on account of injurious diseases of Indian corn.

Cottonseed products.—The order of June 23, 1917, prohibits the importation of cottonseed cake, meal, and all other cottonseed products, except oil, from all foreign countries, and a second order of June 23, 1917, prohibits the importation of cottonseed oil from Mexico, except under permit and in accordance with the other provisions of the regulations issued under said orders, on account of injurious insects, including the pink bollworm.

Citrus fruits.—The order of June 27, 1917 (Notice of Quarantine No. 23, with regulations), prohibits the importation from the countries and localities listed therein of all species and varieties of citrus fruits, excepting only oranges of the mandarin class (including satsuma and tangerine varieties), on account of the citrus-canker disease. Oranges of the mandarin class (including satsuma and tangerine varieties) may be imported under permit and in accordance with the other provisions of the regulations issued under said order.

Indian corn, broom corn, and related plants.—The order of February 21, 1920 (Notice of Quarantine No. 41, with regulations), prohibits the importation in the raw or unmanufactured state of the stalk and all other parts of Indian corn or maize, broom corn, sweet sorghums, grain sorghums, Sudan grass, Johnson grass, sugar cane, including Japanese varieties, pearl millet, napier grass, teosinte, and Job's tears from all foreign countries and localities on account of the European corn borer and other dangerous insects and plant diseases. The regulations issued under said order permit the importation without restriction of sorghum hay from Canada and clean shelled or threshed grain, from any country, of the plants covered by this order. Provision is also made for the importation of broom corn under permit and in accordance with the other provisions of the regulations for manufacturing purposes.

Mexican corn.—The order of February 21, 1920 (Notice of Quarantine No. 42, with regulations), prohibits the importation of Indian corn or maize from Mexico, except under permit and in accordance with the other provisions of the regulations issued

under said order, on account of contamination of such corn with cotton seed more or less infested with the pink bollworm.

Stocks, cuttings, scions, and buds of fruits.—The order of March 24, 1920 (Notice of Quarantine No. 44), prohibits the importation of stocks, cuttings, scions, and buds of fruits for or capable of propagation from Asia, Japan, Philippine Islands, and Oceania (including Australia and New Zealand) on account of certain dangerous plant diseases and injurious insect pests. Provision is made for the importation under special permits issued by the Secretary of Agriculture of limited quantities of stocks, cuttings, scions, and buds of fruits from the countries and localities named for the purpose of keeping the country supplied with new varieties and necessary propagating stock.





